

## REMARKS

In view of the above amendments and the following remarks, favorable reconsideration of the outstanding office action is respectfully requested.

Claims 1-46 remain in this application. Claims 1-6, 12-19, 21-27, 32, 34-40, 43, 44 and 46 have been amended. Claims 4, 6, 25 and 27 are currently withdrawn from consideration as being directed to a nonelected species. Applicant believes that no new matter is added to the application as part of this response.

### **1. Amendments**

Applicant thanks the Examiner for the detailed observations on the claims. Claims 1-6, 12-19, 21-27, 32, 34-40, 43, 44 and 46 have been amended to improve clarity and to more clearly point out the claimed invention.

### **2. §112 Rejections - "about"**

The Examiner has rejected claims 1-3, 5, 7-24, 26, and 28-46 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. The Examiner asserts that the use of the term "about" with a numerical value renders the claims indefinite.

The Court of Appeals for the Federal Circuit has long held that the use of the term "about" does not generally render a claim indefinite. For example, in *Syntex Inc. v. Paragon Optical Inc.* (7 USPQ2d 1001, 1038), Judge Copple wrote:

"The descriptive term 'about', which is used to explain the claimed ranges in the patents in suit, does not render a claim indefinite under 35 U.S.C. §112. *W.L. Gore & Assocs., Inc. v. Garlock, Inc.*, 721 F.2d 1540, 1557 [220 USPQ at 303, 316] (Fed. Cir. 1983).

Under 35 U.S.C. 112 the term 'about' entitles the patentee to a broad range of interpretation of any range claimed in the patent.

'About' is not broad or arbitrary, but rather is a flexible term with a meaning similar to 'approximately.' *Ex part Eastwood*, 163 USPQ 316, 317 (Bd. Pat.App. 1968).

As a matter of law, the term 'about' is a 'clear warning that exactitude is not claimed but rather a contemplated variation.' *Kolene Corp v. Moter City Metal Treating, Inc.*, 307 F.Supp. 1251, 1258 [163 USPQ 214, 220] (E.D. Mich. 1969), *aff'd*, 440 F.2d 77 [169 USPQ 77] (6<sup>th</sup> Cir. 1971), *cert. denied*, 404 U.S. 886 [171 USPQ 325] (1971)."

In some special circumstances, the use of the word "about" has found to be indefinite; however, the holdings in these cases do not preclude the use of "about" in any and all

patent claims (see, for example, *Amgen Inc. v. Chugai Pharmaceutical Co.*, 927 F.2d 1200 [18 USPQ2s 1016, 1030-31] (Fed. Cir.), *cert. denied*, 502 U.S. 856 (1991)).

Applicant submits that under the case law promulgated by the Court of Appeals for the Federal Circuit, the use of the word "about" in the claims of the present application does not render them indefinite. As such, Applicant respectfully requests that the Examiner withdraw the rejections of claims 1-3, 5, 7-24, 26, and 28-46 under 35 U.S.C. §112, second paragraph.

### **3. §112 Rejections - nonenablement**

The Examiner has rejected claims 1-3, 7-24 and 28-46 under 35 U.S.C. §112, first paragraph, as not being enabled by the specification. The Examiner asserts that "the specification, while being enabling for compositions comprising [the disclosed oligomers], does not reasonably provide enablement for compositions wherein the oligomer is derived from virtually any soft block. The specification does not enable any person skilled in the art...to make and use the invention commensurate in scope with these claims. Applicants have not provided any guidance for the selection and use of components, other than the aforementioned ones...One of ordinary skill could not practice the claimed invention using components other than those disclosed by the applicants, without having to resort to undue experimentation."

The courts have written extensively on the subject of enablement. The enablement requirement does not require the application to disclose the invention in a manner that can be understood by a child. "Not every last detail is to be described, else patent applications would turn into production specifications, which they were never intended to be." (*In re Angstadt*, 537 F.2d 489, 190 USPQ 214, 219 (CCPA 1976)). Specifications "need only be reasonable with respect to the art involved; they need not inform the layman nor disclose what the skilled already possess. They need not describe the conventional...The intricacies need not be described ad absurdum." (*General Elec. Co. v. Brenner*, 407 F.2d 1258, 159 USPQ 335, 337 (D.C. Cir. 1968)). The CCPA has held that the specification need not disclose every example or species covered by a claim: "To require such a complete disclosure would apparently necessitate a patent application or applications with "thousands" of examples...More importantly, such a requirement would force an inventor seeking adequate patent protection to carry out a prohibitive number of actual experiments." (*In re Angstadt*, 190 USPQ at 218).

A *prima facie* case of enablement requires the Examiner to provide a rational basis as to why the disclosure does not teach the manner and process of making and using the invention that corresponds in scope to the claimed invention to one of ordinary skill in the art without undue experimentation. The Examiner has asserted that the application only enables particular coating compositions having oligomers based on poly(propylene glycol); hydroxyethyl acrylate; and either 4,4'-methylenebis(cyclohexylisocyanate) or isophorone diisocyanate. In view of the case law described above, Applicant submits that this assertion alone does not provide a rational basis as to why the disclosure does not enable the full scope of the claimed invention. The present application provides at page 5 several examples of oligomers having polyol soft blocks with an  $M_n$  greater than 4000 Daltons; the skilled artisan will be able to synthesize these oligomers and use them in the claimed invention. Further, using the examples disclosed in the present application as a guide, the skilled artisan will be able to substitute oligomers having other soft polyol blocks with only a routine amount of experimentation. The present application provides some general guidance as well as many examples for the choice of monomer to be used. Using the teachings of the present application with the knowledge of one of skill in the art, only routine experimentation is necessary to practice the invention as claimed. Since the Examiner has not provided a rational basis as to why the disclosure does not enable the full scope of the claimed invention, Applicant submits that a *prima facie* case of nonenablement has not been made, and requests that the rejection of claims 1-3, 7-24 and 28-46 under 35 U.S.C. §112, first paragraph be withdrawn.

The Examiner has rejected claims 1-3, 5, 7-24, 26 and 28-46 under 35 U.S.C. §112, first paragraph, asserting that the specification does not enable the skilled artisan to practice the invention using coating compositions derived from oligomers or monomers lacking ethylenic unsaturation. Applicant strenuously disagrees with the Examiner's assertion that the specification does not enable the skilled artisan to use other classes of oligomers and monomers in the present invention. The skilled artisan will recognize that the final properties of the polymer networks formed in using the present invention are highly dependent on the oligomer soft polyol block structure and the monomer side chain, and less dependent on the particular chemistry used in curing the polymer. The skilled artisan will use the teachings of the present application in conjunction with the knowledge in the art to practice the present invention with other curing chemistries. However, to more particularly claim certain desirable embodiments of the invention, claims 1, 22 and

39 have been amended to recite that the oligomer and reactive monomer are terminally unsaturated.

#### **4. §112 Rejections - definiteness**

The Examiner has rejected claims 1-3, 5, 7-24, 26 and 28-46 under 35 U.S.C. §112, second paragraph, as being indefinite for failing to distinctly point out whether the oligomer is reacted with the reactive monomer or if the oligomer is derived from the polyol soft block and reactive monomer. Claims 1, 22 and 39 have been amended to recite that the composition includes an oligomer, and further includes a reactive monomer.

The Examiner has rejected claims 13-19, 43 and 44 under 35 U.S.C. §112, second paragraph, as being indefinite with respect to the use of the term "comprising." Claims 13-19, 43 and 44 have been rewritten to recite that the compositions "have" the claimed properties.

The Examiner has rejected claims 39-45 under 35 U.S.C. §112, second paragraph, as being indefinite for using the terms "primary" and "secondary." The terms "primary coating" and "secondary coating" are well known in the optical fiber art, and are described in the specification at page 1, line 20 to page 2, line 7; at page 15, line 30 to page 16, line 1; and in FIG. 1. A primary coating is applied directly to the glass cladding of the optical fiber and provides a cushioning function, while a secondary coating is formed over the primary coating and provides a protection function. Applicant submits that since the terms "primary" and "secondary" are well-understood in the art, their use does not render claims 39-45 indefinite.

The Examiner has noted that it is unclear whether or not the specification provides antecedence for the subject matter of claim 45. Applicant feels that the subject matter of claim 45 is properly described in the specification-as-filed. However, in order to allay the Examiner's concerns, the specification has been amended to include the limitation of originally-filed claim 45.

The Examiner has rejected claim 46 under 35 U.S.C. §112, second paragraph, as being indefinite with respect to the use of IPDI and H12MDI, with respect to the word "in" in the third line of the claim, and with respect to the relationship of the reactive monomer to the composition. Claim 46 has been rewritten to remove the word "in", to define IPDI and H12MDI in accordance with the rest of the application, and to recite that the composition comprises an oligomer, and further comprises the reactive monomer.

The Examiner has rejected claim 21 under 35 U.S.C. §112, second paragraph, as being indefinite with respect to the formulation of the Markush group. The claim has been amended to replace “and” with “or”.

The Examiner has rejected claims 14-19 under 35 U.S.C. §112, second paragraph, as being indefinite with respect to the state of the composition. Claims 14-17 have been rewritten to recite that the composition when cured has the claimed property. Claims 18 and 19 have been rewritten to recite that the composition before curing has the claimed viscosity.

The Examiner has noted that claims 6, 27 and 46 contain oligomers derived from polyols having molecular weights of 2000, and asserted that “these 2000 molecular weight polyols fail to further limit the independent claims, which require 4000 molecular weight polyols.” The independent claims do not require 4000 molecular weight polyols; rather, they require polyol soft blocks having an  $M_n$  of more than about 4000 Daltons. The polyol soft block is defined in the specification (page 5, line 33 to page 6, line 3) as “each group of the oligomer except for the terminal acrylate and isocyanate groups.” Examples are given in the specification; for example, the polyol soft block of the oligomer HEA-H12MDI-PPG<sub>4000</sub>-H12MDI-HEA is PPG<sub>4000</sub>, while the polyol soft block of the oligomer HEA-H12MDI-PPG<sub>4000</sub>-H12MDI-PPG<sub>4000</sub>-H12MDI-HEA is PPG<sub>4000</sub>-H12MDI-PPG<sub>4000</sub>. As such, the polyol soft block of the oligomer of claim 6 is PPG<sub>2000</sub>-IPDI-T<sub>2000</sub>-IPDI-PPG<sub>2000</sub>, which has an  $M_n$  in excess of 6000 Daltons.

## **5. Conclusion**

Based upon the above amendments, remarks, and papers of record, Applicant believes the pending claims 1-46 of the above-captioned application are in proper form and are fully enabled. Applicant respectfully requests reconsideration of the pending claims and prompt action thereon.

Applicant believes that no extension of time is necessary to make this Response timely. Should Applicant be in error, Applicant respectfully requests that the Office grant such time extension pursuant to 37 C.F.R. § 1.136(a) as necessary to make this Reply timely, and hereby authorizes the Office to charge any necessary fee or surcharge with respect to said time extension to the deposit account of the undersigned firm of attorneys, Deposit Account 03-3325.


Please direct any questions or comments to James V. Suggs at 607/974-3606.

Respectfully submitted,

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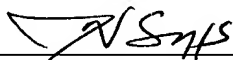
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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE SPECIFICATION

Please rewrite the paragraph beginning at page 10, line 9 as follows:

--Suitable reactive monomers include ethoxylated acrylates, ethoxylated nonylphenol monoacrylates, propylene oxide acrylates, n-propylene oxide acrylates, isopropylene oxide acrylates, monofunctional acrylates, and combinations thereof. In one desirable embodiment of the invention, the monomer includes a branched polyoxyalkylene chain. Preferred monomers include:

- (1)  $R_2-R_1-O-(CH_2CH_2CH-O)_n-COCH=CH_2$ , where  $R_1$  and  $R_2$  are aliphatic, aromatic, or a mixture of both, and  $n = 1$  to  $10$ , and
- (2)  $R_1-O-(CH_2CH_2CH-O)_n-COCH=CH_2$ , where  $R_1$  is aliphatic or aromatic, and  $n = 1$  to  $10$ .--

IN THE CLAIMS

Please amend claims 1-6, 12-19, 21-27, 32, 34-40, 43, 44 and 46 as follows:

1. (once amended) A curable coating composition comprising:  
at least one terminally ethylenically unsaturated oligomer comprising a polyol soft block having a number average molecular weight of more than about 4000 Daltons; [and]  
the composition further comprising at least one ethylenically unsaturated reactive monomer,  
wherein said composition when cured has a [cured coating] tensile strength of at least about 0.85 MPa and a Young's Modulus of less than about 1.3 MPa.
2. (once amended) The coating composition of claim 1, wherein said polyol soft block has a number average molecular weight of at least about 8000 Daltons.
3. (once amended) The coating composition of claim 1, wherein said polyol soft block comprises at least one moiety of polypropylene glycol having a number average molecular weight of at least about 4000 Daltons.

4. (once amended) The coating composition of claim 1, wherein said oligomer comprises:

HEA~H12MDI~PPG<sub>4000</sub>~H12MDI~HEA, where PPG<sub>4000</sub> comprises a polypropylene glycol having a number average molecular weight of approximately 4000 Daltons and a molecular weight distribution of less than about 1.1, H12MDI comprises 4,4'-methylenebis(cyclohexylisocyanate), and HEA comprises 2-hydroxyethyl acrylate.

5. (once amended) The coating composition of claim 1, wherein said oligomer comprises:

HEA~H12MDI~PPG<sub>4000</sub>~H12MDI~PPG<sub>4000</sub>~H12MDI~HEA, where PPG<sub>4000</sub> comprises a polypropylene glycol having a number average molecular weight of approximately 4000 Daltons and a molecular weight distribution of less than about 1.1, H12MDI comprises 4,4'-methylenebis(cyclohexylisocyanate), and HEA comprises 2-hydroxyethyl acrylate.

6. (once amended) The coating composition of claim 1, wherein said oligomer comprises:

HEA~(IPDI~PPG<sub>2000</sub>~IPDI)~T<sub>2000</sub>~(IPDI~PPG<sub>2000</sub>~IPDI)~HEA, where HEA comprises hydroxyethyl acrylate, IPDI comprises isophorone diisocyanate, PPG<sub>2000</sub> comprises poly(propylene glycol) with a M<sub>n</sub> of about 2000 Daltons and T<sub>2000</sub> comprises poly(tetramethylene glycol) with a M<sub>n</sub> of about 2000 Daltons.

12. (once amended) The coating composition of claim 1, wherein said monomer [comprises] is selected from the group consisting of propylene oxide acrylates, n-propylene oxide acrylates, iso-propylene oxide acrylates, substituted iso-propylene oxide acrylates, substituted alkoxy alkyl alkenes, propylene oxide ethoxylated oxides, [or] and combinations thereof.



13. (once amended) The coating composition of claim 1, wherein said composition when cured [comprises] has a Young's Modulus of about 1.28 MPa or less and a tensile strength of at least about 1 MPa.

14. (once amended) The coating composition of claim 13, wherein said composition when cured [comprises] has a Young's Modulus of about 1.25 MPa or less.

15. (once amended) The coating composition of claim 13, wherein said composition when cured [comprises] has a Young's Modulus of about 1 MPa or less.

16. (once amended) The coating composition of claim 13, wherein said composition when cured has [comprises] a tensile strength of at least about 1.5 MPa.

17. (once amended) The coating composition of claim 13, wherein said composition when cured has [comprises] a tensile strength of at least about 1.75 MPa.

18. (once amended) The coating composition of claim 13, wherein said composition before curing [comprises] has a viscosity at 25° C of less than about 80 [poise] Poise.

19. (once amended) The coating composition of claim 14, wherein said composition before curing [comprises] has a viscosity at 25° C of less than about 50 [poise] Poise.

22. (once amended) A coated optical fiber comprising an optical fiber having a primary coating layer thereon, the primary coating layer comprising the polymerized product of a curable coating composition comprising

at least one terminally ethylenically unsaturated oligomer comprising a polyol soft block having a number average molecular weight of more than about 4000 Daltons,

the composition further comprising [and] at least one ethylenically unsaturated reactive monomer,

wherein said [cured] primary coating layer has a tensile strength of at least about 0.85 MPa and a Young's Modulus of less than about 1.3 MPa.

23. (once amended) The coated fiber of claim 22, wherein said polyol soft block has a number average molecular weight of at least about 8000 Daltons.
24. (once amended) The coated fiber of claim 22, wherein said polyol soft block comprises at least one moiety of polypropylene glycol having a number average molecular weight of at least about 4000 Daltons.
25. (once amended) The coated fiber of claim 22, wherein said oligomer comprises:  
HEA~H12MDI~PPG<sub>4000</sub>~H12MDI~HEA, where PPG<sub>4000</sub> comprises a polypropylene glycol having a number average molecular weight of approximately 4000 Daltons and a molecular weight distribution of less than about 1.1, H12MDI comprises 4,4'-methylenebis(cyclohexylisocyanate), and HEA comprises 2-hydroxyethyl acrylate.
26. (once amended) The coated fiber of claim 22, wherein said oligomer comprises:  
HEA~H12MDI~PPG<sub>4000</sub>~H12MDI~PPG<sub>4000</sub>~H12MDI~HEA,  
where PPG<sub>4000</sub> is a polypropylene glycol having a molecular weight of approximately 4000 Daltons and a molecular weight distribution of less than about 1.1, H12MDI is 4,4'-methylenebis(cyclohexylisocyanate), and HEA is 2-hydroxyethyl acrylate.
27. (once amended) The coated fiber of claim 22, wherein said oligomer comprises:  
HEA~(IPDI~PPG<sub>2000</sub>~IPDI)~T<sub>2000</sub>~(IPDI~PPG<sub>2000</sub>~IPDI)~HEA, where HEA comprises hydroxyethyl acrylate, IPDI comprises isophorone diisocyanate, PPG<sub>2000</sub> comprises poly(propylene glycol) with a M<sub>n</sub> of about 2000 Daltons and T<sub>2000</sub> comprises poly(tetramethylene glycol) with a M<sub>n</sub> of about 2000 Daltons.
32. (once amended) The coated fiber of claim 31, wherein the curable coating composition further comprising a monomer having a branched polyoxyalkylene chain.

34. (once amended) The coated fiber of claim 22, wherein said [cured] primary coating layer has a Young's Modulus of about 1.28 MPa or less and a tensile strength of at least about 1 MPa.
35. (once amended) The coated fiber of claim 22, wherein said [cured] primary coating layer has a Young's Modulus of about 1.25 MPa or less.
36. (once amended) The coated fiber of claim 22, wherein said [cured] primary coating layer has a Young's Modulus of about 1 MPa or less.
37. (once amended) The coated fiber of claim 22, wherein said [cured] primary coating layer has a tensile strength of at least about 1.5 MPa.
38. (once amended) The coated fiber of claim 22, wherein said [cured] primary coating layer has a tensile strength of at least about 1.75 MPa.
39. (once amended) A method for making a coated optical fiber, comprising the steps of:  
providing an optical fiber;  
coating the optical fiber with a polymerizable composition comprising at least one terminally ethylenically unsaturated oligomer comprising a polyol soft block having a number average molecular weight of more than about 4000 Daltons, [and] the composition further comprising at least one ethylenically unsaturated reactive monomer; and  
polymerizing the composition under conditions effective to form a primary coating over the optical fiber,  
wherein said [cured composition] primary coating has a [coating] tensile strength of at least about 0.85 MPa and a Young's Modulus of less than about 1.3 MPa.
40. (once amended) The method of claim 39, further comprising the step of coating the optical fiber with a secondary polymerizable composition over said primary coating.
43. (once amended) The coating composition of claim 1, wherein said polyol soft block comprises a polyol having a molecular weight distribution of less than about 1.1.

44. (once amended) The coating composition of claim 1, wherein said composition before curing [comprises] has a viscosity at 25° C of less than about 970 [cps] centiPoise.

46. (once amended) A curable coating composition comprising:

at least one oligomer comprising a polyol soft block having a number average molecular weight of more than about 4000 Daltons wherein [in] said oligomer comprises at least one of the oligomers selected from HEA-H12MDI-PPG<sub>4000</sub>-H12MDI-HEA; HEA-H12MDI-PPG<sub>4000</sub>-H12MDI-PPG<sub>4000</sub>-H12MDI-HEA; HEA-(IPDI-PPG<sub>2000</sub>-IPDI)-T<sub>2000</sub>-(IPDI-PPG<sub>2000</sub>-IPDI)-HEA; HEA-(IPDI-T<sub>2000</sub>-IPDI)-PPG<sub>2000</sub>-(IPDI-T<sub>2000</sub>-IPDI)-HEA; HEA-(IPDI-PPG<sub>2000</sub>-IPDI)-BD-(IPDI-PPG<sub>2000</sub>-IPDI)-HEA; HEA-(IPDI-BD-IPDI)-PPG<sub>2000</sub>-(IPDI-BD-IPDI)-HEA; HEA-(IPDI-EG<sub>4</sub>-IPDI)-PPG<sub>2000</sub>-(IPDI-EG<sub>4</sub>-IPDI)-HEA; HEA-H12MDI-PPG<sub>8000</sub>-H12MDI-HEA; and combinations thereof, wherein HEA comprises a hydroxyethyl acrylate capping group, IPDI comprises [a diisocyanate] isophorone diisocyanate, PPG<sub>2000</sub> comprises a poly(propylene glycol) with a M<sub>n</sub>= 2000, T<sub>2000</sub> comprises a poly(tetramethylene glycol) with a M<sub>n</sub>= 2000, BD comprises a butanediol, EG<sub>4</sub> comprises a tetraethylene glycol, and PPG<sub>4000</sub> comprises a poly(propylene glycol) with a M<sub>n</sub>= 4000, and H12MDI comprises [an isocyanate] 4,4'-methylenebis(cyclohexylisocyanate), the composition further comprising at least one ethylenically unsaturated reactive monomer,

wherein said composition when cured has a [cured coating] tensile strength of at least about 0.85 MPa and a Young's Modulus of less than about 1.3 MPa.